



**education**

Department:  
Education  
REPUBLIC OF SOUTH AFRICA

# **NATIONAL CERTIFICATES (VOCATIONAL)**

## **SUBJECT GUIDELINES**

### **ANIMAL PRODUCTION**

#### **NQF LEVEL 2**

September 2007



# INTRODUCTION

## **A. What is Animal Production?**

The National Certificates (Vocational) extends from NQF Levels 2 to 4 in Further Education and Training Colleges. Animal Production is a Vocational subject of in the Primary Agriculture programme. The subject covers the following fields of study:

- Basic Understanding of Animal Anatomy and Physiology
- Poultry Production
- Goat Production
- Sheep production
- Advanced Animal Nutrition
- Cattle Farming and Ostrich Farming.

The subject aims to equip students with skills, values and knowledge necessary to progress through the levels of Animal Production. Whilst the subject is grounded in the South African context, it also incorporates global small-scale farming imperatives.

## **B. Why is Animal Production important in the Primary Agriculture programme?**

The Primary Agriculture programme is designed to equip learners with the necessary skills to enter a mixed farming situation. Livestock is a central concern of farming operations.

## **C. The link between the Animal Production Learning Outcomes and the Critical and Developmental Outcomes**

The methods of teaching and assessment are vital for the achievement of the Critical Outcomes and Developmental Outcomes. During the three years of the National Certificates (Vocational) programme, students are responsible, individually and in groups, for live animals and crops, and consequently, keep journals in which they answer, amongst others, reflective questions.

The assessment questions will require students to go beyond mere recall and into solving problems that relate to animals and the other topics linked to their practical work and go beyond this immediate context by asking "What if...?" and similar questions. Questions relating to the planning of farm activities can be used to promote in-depth thinking.

Given these teaching and assessment processes, by the end of the three years the students should have covered all seven Critical Outcomes to some extent and most if not all of the Developmental Outcomes. Critical thinking, critical evaluation and seeing the world as a set of interrelated systems will be easier to address by the third year of the programme, when the students are at NQF level 4; they will have more information available and be able to consider a wider range of options.

## **D. Factors that contribute to achieving the Animal Production Learning Outcomes**

- Enabling environment – This subject should be presented in the context of small, micro and medium enterprises (SMMEs), emerging small-scale farmers and personal needs.
- Resources – Students should have access to all the necessary resources.
- Experiential exposure – Students should be exposed to real work and simulated work environments.
- Suitably qualified lecturers – Lecturers should have a solid command of subject knowledge and skills and be well informed about legislation, community issues and accessing support systems, for example systems provided by the Department of Agriculture.

## **ANIMAL PRODUCTION – LEVEL 2**

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## 1 DURATION AND TUITION TIME

This is a one-year instructional programme comprising 200 teaching and learning hours. The subject may be offered on a part-time basis provided the student meets all the assessment requirements.

## 2 SUBJECT LEVEL FOCUS

The student should be able to demonstrate an understanding of animal production and some aspects of animal anatomy and physiology.

## 3 ASSESSMENT REQUIREMENTS

### 3.1 Internal assessment (50 percent)

All internal assessments must be finalised by an assessor who has been declared competent by an accredited provider. Students have to be prepared for assessment according to the assessment policy of the institution.

#### 3.1.1 Theoretical component

Students must achieve all the Subject and Learning Outcomes of Animal Production at this level. All topics in this subject will have an assessment that will form part of the formative assessment at the end of the subject.

For Topic 1 (Animal Anatomy and Physiology), the theoretical component makes up 60 percent of the internal assessment marks and the practical component 40 percent. For topics 2 and 3 (Poultry Production and Goat Production), the theoretical component makes up 40 percent of the internal assessment marks and the practical component 60 percent

#### 3.1.2 Practical component

It must be clearly indicated what Learning Outcomes were achieved for each practical assessment including the rating achieved for each one. All practical assessments must be recorded in the Portfolio of Evidence (PoE).

Practical experiential training, similar to workplace practice, is extremely important for the poultry and goat production but there should also be activities that can be completed in a scientific laboratory. The Learning Outcomes will be done integrating theory and practicals.

#### 3.1.3 Processing of internal assessment mark for the year

The internal assessment mark for Topic 1 (Animal Anatomy and Physiology), with the theory and practical weightings as described, is converted to a mark out of 40. The internal assessment marks for Topics 2 and 3 (Poultry Production and Goat Production), with the theory and practical weightings as described, is each converted to a mark out of 30.

A year mark out of 100 is calculated by adding together the internal assessment marks of the three topics.

#### 3.1.4 Moderation of internal assessment mark

Internal assessment is subjected to internal and external moderation procedures as set out in the *National Examinations Policy for FET College Programmes*.

### 3.2 External assessment (50 percent)

A National Examination is conducted annually in October or November by means of a paper(s) set and moderated externally. A practical component will also be assessed.

External assessment details and procedures are set out in the *Assessment Guidelines: Animal Production (Level 2)*.

#### 4 WEIGHTED VALUES OF TOPICS

TOPICS	WEIGHTED VALUE
1. Animal Anatomy and Physiology	30%
2. Poultry Production	35%
3. Goat Production	35%
<b>TOTAL</b>	<b>100%</b>

#### 5 CALCULATION OF FINAL MARK

Internal assessment mark: Student's mark/100 x 50 = a mark out of 50 (a)

Examination mark: Student's mark/100 x 50 = a mark out of 50 (b)

**Final mark: (a) + (b) = a mark out of 100**

All marks are systematically processed and accurately recorded to be available as hard copy evidence for, amongst others, reporting, moderation and verification purposes.

#### 6 PASS REQUIREMENTS

The student must obtain at least fifty (50) percent in ICASS and fifty (50) percent in the examination.

#### 7 SUBJECT AND LEARNING OUTCOMES

On completion of Animal Production Level 2, the student should have covered the following topics:

Topic 1: Animal Anatomy and Physiology

Topic 2: Poultry Production

Topic 3: Goat Production

##### 7.1 Topic 1: Animal Anatomy and Physiology

**Subject Outcome:** Explain the structure and functioning of the following systems in farm animals: skeleton and main muscle groups, cardiovascular and lymph system, respiratory system and digestive system.

##### **Learning Outcomes:**

The student should be able to:

- Identify, in diagrams, photographs and carcasses, the main organs involved in each system.
- Explain, in simple terms, how these organs work, including how they could react to stress situations.
- Study diagrams or photographs of organs from an unfamiliar animal and suggest how they differ from familiar examples and what possible environment they could be adapted to.

*RANGE:*

*No biochemical details are required.*

*Microscopic details are not required, except for diagrams or photographs of blood cells; students are not required to operate microscopes themselves.*

**Skeleton and main muscle groups** include:

- The skull and vertebral column (not different kinds of vertebrae), pectoral and pelvic girdles, legs and wings (where applicable) and the main groups of muscles causing locomotion
- Simple structure of a joint between two bones, with ligaments and tendons, cartilage, synovial membranes and fluids
- Simple structure of a long limb bone with marrow

**Cardiovascular system including lymph system** includes:

- Heart and functions of the four chambers

- Only a few major arteries and veins including aorta, pulmonary arteries and veins, carotid arteries and renal and hepatic portal veins
- Roles of red blood corpuscles in transporting oxygen and carbon dioxide, the plasma in transporting dissolved nutrients and white blood cells in combating bacteria
- Mechanism of blood clotting is NOT required.

**Respiratory system** includes lungs, rib cage, diaphragm, air sacs (where applicable) and mechanism of breathing.

**Digestive system** includes:

- Teeth (main types and functions)
- Mouth, non-ruminant stomach, duodenum, small intestine, caecum, large intestine – simple structure, main enzymes in each and what foodstuffs each breaks down to form what products
- Additional features of the ruminant stomach and how it works, including role of bacteria

## 7.2 Topic 2: Poultry Production

**Subject Outcome 1:** Identify and describe poultry breeds, types and houses using appropriate examples.

*RANGE: Type refers to broilers, laying hens and dual purpose.*

### Learning Outcomes:

The student should be able to:

- Identify different types of poultry and describe some common breeds of each type, highlighting their advantages and disadvantages to make informed economic decisions.
- Identify the types of poultry houses and explain how they are suited to various production requirements and how to choose a good type for a particular site.

**Subject Outcome 2:** Identify and describe types of feeds in terms of their properties, advantages and disadvantages.

### Learning Outcomes:

The student should be able to:

- Identify the different types of feed for each growth stage to ensure proper nutrition.  
*RANGE: Growth stage refers to day old, growing stage, finishing stage and egg-laying stage for layers.*
- Explain the main components of the different types of feed and how each is suited to a particular growth stage.  
*RANGE: Components include protein, carbohydrates, lipids, vitamins, mineral salts and roughage. Essential amino acids and calculations on topics such as metabolisable energy are NOT required.*
- Explain how to monitor consumption and cost and minimise waste.  
*RANGE: Students weigh the amounts of feed used in particular poultry houses, inspect for signs of waste around feeding troughs and calculate unit costs per bird and compare these with income from sales of birds and/or eggs.*

**Subject Outcome 3:** Identify and control diseases and parasites affecting poultry according to workplace procedures.

### Learning Outcomes:

The student should be able to:

- Define and identify symptoms of diseases and parasites affecting poultry.  
*RANGE: Students learn about common diseases in the area and see pictures of the symptoms of any not found in the college flock at the time as well as receiving descriptions of behavioural symptoms.*
- Outline the life cycles of diseases and parasite organisms, with particular reference to measures for prevention and control.
- Identify and explain the prevention and treatment procedures used for the specified diseases.  
*RANGE: This includes vaccination and medication supplied through drinking water or otherwise, depending on local conditions and use.*

- Describe and demonstrate how to treat infected poultry using the above procedures.  
*RANGE: This includes calculating the correct amounts of vaccine or medication to put in the drinking water.*

**Subject Outcome 4:** Demonstrate an ability to handle poultry at all stages of rearing and production.

**Learning Outcomes:**

The student should be able to:

- Explain different ways of handling poultry in different circumstances.
- Demonstrate the different ways of handling different poultry in different situations during rearing and production.

*RANGE: Situations include rearing, transportation and treating.*

### 7.3 Topic 3: Goat Production

**Subject Outcome 1:** Identify and describe the goat types and breeds in terms of their suitability to environmental conditions.

*RANGE: Environmental conditions include climate, vegetation and diseases. Types will include high milk yield goats as well as others.*

**Learning Outcomes:**

The student should be able to:

- Identify the different breeds of goat suitable to Southern African conditions.
- Describe the characteristics of different types of goat breeds for production and breeding in different local environments.

**Subject Outcome 2:** Describe and demonstrate the feeding of goats in relation to their stages of growth and production.

**Learning Outcomes:**

The student should be able to:

- Identify and explain the different methods of feeding of goats in relation to breed, production and growth stages.  
*RANGE: Method refers to natural grazing or browsing and supplementary feeding.*
- Explain the different nutritional requirements and rearing practices in relation to the different types of goats.
- Explain, using examples, different grazing systems in relation to adaptability and breed selection.
- Apply these grazing systems in a workplace situation.

**Subject Outcome 3:** Identify symptoms and control diseases and parasites affecting goats according to workplace procedures.

**Learning Outcomes:**

The student should be able to:

- Identify diseases and parasites common to the area that affect quality goat production.  
*RANGE: Diseases refers to bacterial, protozoan and viral diseases. Parasites include external and internal parasites.*
- Outline the life cycles of diseases and parasite organisms, with particular reference to measures for prevention and control.
- Identify the treatments used for different diseases and parasites to apply the appropriate intervention.
- Explain the workplace procedures used to minimise infection and demonstrate the treatment of infected goats.
- Apply these workplace procedures in the workplace environment.

**Subject Outcome 4:** Demonstrate an ability to handle goats.



**Learning Outcomes:**

The student should be able to:

- Explain different ways of handling goats in different circumstances.  
*RANGE: Different circumstances refer to growth stages, treatment for infections, transportation, breeding, castrating, tail docking, hoof clipping, shearing and milking.*
- Demonstrate the different ways of handling different goats at all stages of rearing and production.